

AMENDMENTS TO THE CLAIMS

Please cancel claims 1-20 and add claims 21-30.

LISTING OF CLAIMS:

This listing of claims replaces all prior versions, and listings, of claims in the application.

Claims 1-20. (Cancelled)

1           Claim 21. (New) In a digital eye camera for producing diagnostic-quality images of  
2 both the retina and cornea of the human eye, with the eye camera having an optical system  
3 including shared combination of components utilized for imaging both the retina and cornea, a  
4 retinal combination of components utilized only to image the retina, and a corneal combination of  
5 components utilized only to image the cornea, with the components disposed within a housing, an  
6 objective lens system comprising:  
7           a front non-changeable lens element used to seal the optical system;  
8           a first changeable lens element of said objective lens system, included in the retinal  
9 combination, for focusing, in combination with said first objective element, portions or all of said  
10 retinal region at or approximately at a common image plane; and  
11           a second changeable lens element of said objective lens system, included in the  
12 corneal combination of elements, focusing, in combination with said first objective element, portions  
13 or all of said cornea region at or approximately at a infinity.

1           Claim 22. (New) The objective lens system of claim 21 where:  
2           the first changeable lens element corrects for chromatic aberrations caused by the gel  
3 which fills the eye and non-chromatic aberrations of the air.

1           Claim 23. (New) In a digital eye camera for producing diagnostic-quality images of  
2 the retina and cornea of the human eye, with the eye camera having an optical system including a  
3 shared combination of components utilized for imaging both the retina and cornea, and with the  
4 shared combination of components including an image generating group of optical components, with  
5 the eye camera also having a retinal combination of components utilized only to image the retina,

6 and a corneal combination of components utilized only to image the cornea, with the components  
7 disposed within a housing, a sequential stereoscopic imaging system comprising:  
8 at least first and second mirrors, included in the shared combination of components,  
9 for relaying images between an objective lens set and the image generating group of optical  
10 components;  
11 with the first mirror being rotatable about an axis parallel to the optical axis of the  
12 objective lens set to move an entrance pupil of the optical system to form sequential, spatially  
13 separate images utilized to form a stereoscopic image.

1 Claim 24. (New) The sequential stereoscopic imaging system of claim 23 with the  
2 second mirror being rotatable about an axis parallel to the optical axis of the objective lens set in a  
3 direction opposite from the rotation of the first mirror to form more precise sequential, spatially  
4 separate images utilized to form a stereoscopic image.

1 Claim 25. (New) In an eye camera including an optical system of forming an image  
2 of the retina on an image plane, with the optical system including an optical path between an  
3 objective lens set and the image plane, and where the optical system forms an entrance pupil located  
4 at the eye lens of a patient, a sequential stereoscopic imaging system comprising:  
5 at least first and second mirrors, located in the optical path, for relaying images  
6 between the objective lens set and the image plane;  
7 with the first mirror being rotatable about an axis parallel to the optical axis of the  
8 objective lens set to move the entrance pupil to form sequential, spatially separate images utilized to  
9 form a stereoscopic image.

1 Claim 26. (New) The sequential stereoscopic imaging system of claim 25 with the  
2 second mirror being rotatable about an axis parallel to the optical axis of the objective lens set in a  
3 direction opposite from the rotation of the first mirror to form more precise sequential, spatially  
4 separate images utilized to form a stereoscopic image.

1 Claim 27. (New) In an eye camera including an optical system of forming an image  
2 of the cornea on an image plane, with the optical system including an optical path between an

objective lens and the image plane, and where the optical system forms an entrance pupil located at the objective, a system of performing laser therapy on the cornea comprising:

- at least first and second mirrors, located in the optical path, for relaying images between the objective lens set and the image plane;
- with the first mirror being rotatable about an axis parallel to the optical axis of the objective lens set to move the entrance pupil to form sequential, spatially separate images utilized to form a stereoscopic image.

Claim 28. (New) The sequential stereoscopic imaging system of claim 27 with the second mirror being rotatable about an axis parallel to the optical axis of the objective lens set in a direction opposite from the rotation of the first mirror to form more precise sequential, spatially separate images utilized to form a stereoscopic image.

Claim 29. (New) In a digital eye camera for producing diagnostic-quality images of both the retina and cornea of the human eye, with the eye camera having an optical system including a shared combination of components utilized for imaging both the retina and cornea, a retinal combination of components utilized only to image the retina, and a corneal combination of components utilized only to image the cornea, with the components disposed within a housing, a bimodal entrance pupil forming system comprising:

- an aperture included in the shared combination of components;
- a retinal objective lens set, included in the retinal combination for projecting a real image of the retina on a first image plane;

- a set of optical components in the retinal combination of elements for projecting an image of the aperture at the eye lens of the patient to form an entrance pupil at the eye lens of the patient;

- a cornea objective lens set, included in the corneal combination for projecting an image of the cornea to infinity; and

- a set of optical components in the corneal combination of elements for projecting an image of the aperture at cornea objective lens to form an entrance pupil at the cornea objective lens.

1                   Claim 30. (New) In an eye camera including an optical system of forming an image  
2 of the retina on an image plane, with the optical system including an optical path between an  
3 objective lens and the image plane, and where the optical system forms an entrance pupil located at  
4 the eye lens of a patient, a system of performing laser therapy on the retina comprising:

5                   a laser for providing a laser beam;  
6                   a beam splitter for introducing laser energy into the optical path;  
7                   a lens system for focusing the laser beam at the image plane of the objective lens;  
8                   a movable mirror, conjugate to the entry pupil, for directing the laser beam through a  
9 desired portion of the entrance pupil.

1                   Claim 31. (New) The system of performing laser therapy of claim 30 further  
2 comprising:

3                   a servo system that monitors the position of the cornea to control the movable mirror  
4 to maintain a substantially constant location of the laser beam on the cornea.

1                   Claim 32. (New) In an eye camera including an optical system of forming an image  
2 of the cornea on an image plane, with the optical system including an optical path between the an  
3 objective lens and the image plane, and where the optical system forms an entrance pupil located at  
4 the objective, a system of performing laser therapy on the cornea comprising:

5                   a laser for providing a laser beam;  
6                   a beam splitter for introducing laser energy into the optical path;  
7                   a lens system for focusing the laser beam at the image plane of the objective lens;  
8                   a movable mirror, conjugate to the entry pupil, for directing the laser beam through a  
9 desired portion of the entrance pupil.

1                   Claim 33. (New) The system of performing laser therapy of claim 32 further  
2 comprising:

3                   a servo system that monitors the position of the cornea to control the movable mirror  
4 to maintain a substantially constant location of the laser beam on the cornea.

1                   Claim 34. (New) In a digital eye camera for producing diagnostic-quality images of  
2 both the retina and cornea of the human eye, with the eye camera having an optical system  
3 including a shared combination of components utilized for imaging both the retina and cornea, a  
4 retinal combination of components utilized only to image the retina, and a corneal combination of  
5 components utilized only to image the cornea, with the components disposed within a housing, a  
6 system, included in the shared combination, for performing laser therapy comprising:

7                   a laser for providing a laser beam;  
8                   a beam splitter for introducing laser energy into the optical path;  
9                   a lens system for focusing the laser beam at the image plane of the objective lens;  
10                  a movable mirror, conjugate to the entry pupil, for directing the laser beam through a  
11 desired portion of the entrance pupil.

1                   Claim 35. (New) The system of claim 34 where the digital eye camera includes a  
2 computer, and further comprising:

3                   a servo system, under control of the computer, that monitors the position of the  
4 cornea to control the movable mirror to maintain a substantially constant location of the laser beam  
5 on the cornea.

1                   Claim 36. (New) The system of claim 35 where the computer controls the delivery  
2 of the laser beam after instructions by the operator

1                   Claim 37. (New) In an eye camera including an optical system of forming an image  
2 of the retina on an image plane, with the optical system including an optical path between an  
3 objective lens and the image plane, and where the optical system forms an entrance pupil located at  
4 the eye lens of a patient, a system of providing visual stimulation to the retina comprising:

5                   a programmable light source located at a plane conjugate to the retina;  
6                   a beam splitter for introducing an image of the programmable light source into the  
7 optical path.